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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

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ART UNIT

PAPER NUMBER

1621

DATE MAILED:

02/28/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
09/304,298

Applicant(s)  
Austin D. Taggart II, et al.

Examiner  
Michael L. Shippen

Group Art Unit  
1621



☒ Responsive to communication(s) filed on Dec 4, 2000

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-18 and 21-38 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☒ Claim(s) 1-10, 12-14, 17, 18, 21, and 22 is/are allowed.

☒ Claim(s) 11, 15, 16, and 23-38 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4 & 5

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 112<sup>1</sup>*

Claims 11, 15 and 16 are rejected under 35 U.S.C. § 112, second paragraphs, as failing to particularly point out the claimed invention. Step cii) of claim 11 has no basis in the parent claim rendering the claim indefinite. In claims 15 and 16 "said hydrocarbon stream" is not clearly identified rendering the claims indefinite. It is noted parent claim 1 make no reference to a hydrocarbon stream.

Claims 23-26 are rejected under 35 U.S.C. § 112, first and second paragraphs. The claims fail to recite critical reaction steps. As the claims now read, they literally read on treating the cleavage mass itself to remove the salts which is neither disclosed nor enabled in the specification as filed. The specification discloses treating only phenolic bottoms stream in this manner which the claims fail to particularly point out.

Claims 27-38 are rejected under 35 U.S.C. § 112, first and second paragraphs. The claims fail to recite critical reaction steps. As the claims now read, they literally read on treating the crude phenol itself to remove the salts which is neither disclosed nor enabled in the specification as filed.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 112 that form the basis for the rejections under this section made in this Office action:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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The specification discloses treating only phenolic bottoms stream in this manner which the claims fail to particularly point out.

Claims 27 and 28 are rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out the claimed invention. In claim 27, the limitation requiring "a phase separation vessel having a volume of 5000 gallons or less based on 100 parts by weight per hour of cleavage mass feed" is indefinite because the parts by weight does not actually identify the amount contemplated. For example, this would read on a feed of 100 grams of cleavage mass to a 5000 gallon vessel or 100 tons of cleavage mass to a 5000 gallon vessel neither of which makes sense. Similarly, the limitation in dependent claim 28 does not make sense.

***Claim Rejections - 35 USC § 102<sup>2</sup>***

Claims 27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by USP 5,283,376 in view of USP 5,510,543. USP 5,283,376 teaches treating a phenol tar but does not teach the steps of treating a cleavage mass. USP 5,510,543 is not relied upon as prior art but as evidence that phenol

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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tar is prepared by the cleavage mass treatment steps recited in the claims. As such, inherent in one obtaining the phenol tar treated in USP 5,283,376 are the recited steps of splitting the cleavage mass into acetone and phenol as required by the instant claims.

Claims 27 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by USP 5,847,235 in view of USP 5,510,543. USP 5,847,235 teaches treating a phenol tar but does not teach the steps of treating a cleavage mass. USP 5,510,543 is not relied upon as prior art but as evidence that phenol tar is prepared by the cleavage mass treatment steps recited in the claims. As such, inherent in one obtaining the phenol tar treated in USP 5,283,376 are the recited steps of splitting the cleavage mass into acetone and phenol as required by the instant claims.

***Claim Rejections - 35 USC § 103<sup>3</sup>***

Claims 23-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,847,235 and USP 5,283,376 optionally in view of USP 2,951,870 and USP 5,510,543 further optionally in view of USP 5,962,751. The primary references teach the treating of phenol tars with water. The references differ from the claimed process in that they do not make reference to the amount of

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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neutralized cleavage mass involved in the formation of the phenol tar. It is well known in the processing of cleavage mass phenol tars are generated, see USP 5,510,543, column 1 of USP 5,847,235 and column 1 of USP 5,962,751. As seen from Example 3 of USP 2,951,870 the cleavage mass is about 44.5 % acetone. Hence, after splitting one would expect 100 parts of cleavage mass to afford about 55 parts of crude phenol which is mostly phenol. Once the phenol is removed therefrom one would expect (this is not only expected but well known in the art since this method of manufacture is widely practice throughout the world) only a few parts of phenol tar to be generated from 100 parts of the cleavage mass<sup>4</sup>. Looking at USP 5,847,235, Example 1, a tar to water ratio of 1:0.5 is used. For 5 parts of water (as required by claim 23) this ratio would 10 parts of tar would be used. This would appear to be far more tar than would normally be generated 100 parts of cleavage mass. Accordingly, one practicing the well-known methods of manufacture phenol and treating the generated phenol tar in a manner as suggested by USP 5,847,235 would be well within the claimed range. Looking at USP 5,283,376, Example 2, a tar to water ratio of 1:4 is used with 95% of the water recycled. This would indicate that only 5% of the water is not recycled. The ratio of phenol tar to water not recycled would be 1:0.2. This would mean that 25 parts of tar are treated for every 5 parts of water not recycled. Accordingly, one practicing the well-known methods of phenol manufacture and treating the phenol tar in a manner as suggested by USP 5,283,376 would

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USP 5,962, 751 (top of column 1) suggest it can be as high as 10-20% of the phenol produced. Hence 55 parts of crude phenol would afford about 5 to about 9 parts of tar per 100 parts of cleavage mass. This appears to be the upper limits and the actual amounts may be less.

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be well within the claimed range. As for the amount of salt removed, it is clear that a substantial portion of the salt is removed in the examples of the references. As to dependent claims requiring lesser amounts of water purge, these limitations are not seen to distinguish over the prior art. First, it would appear one practicing the prior art methods would still be within the claimed range. To the extent they are not, it is well known economical and environmental expedient to minimize the amount and volume of industrial waste streams. The optimization of such is well within the skill of the artisan through routine experimentation. It is noted that in fact the primary references suggest that the phenol tar to water ratio can be varied. The claimed ranges are within the ratios suggested by the references.

As to the volume of the vessel used in claims 27 and 28, the limitation is somewhat meaningless since the actual weight of the cleavage mass is not given. The claims allow for any size of a vessel under 5,000 gallons. For example, the claims read on using 100 grams of cleaving mass and a 5000 gallon separation vessel which simply does not make any practical sense. Obviously, for practical reasons one would never use a vessel larger than the claim limit and, as such, the limitation is not seen to distinguish over the prior art.

The hydrocarbon feed from any source of claims 28-31 would read on the hydrocarbons present in the phenol tars of the prior art.

#### ***Election/Restriction***

The restriction requirement under 35 U.S.C. § 121 has been rendered moot by the cancellation of claims 19 and 20.


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*Allowable Subject Matter*

Claims 1-10, 12-14, 17, 18, 21 and 22 stand allowed. It is noted to the prior art of record does not suggest the addition of "diluent compositions" to the phenolic bottom streams containing salts prior to extraction by water.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michael L. Shippen** whose telephone number is **(703) 308-4635**. The Examiner's normal tour of duty is 7:30 AM to 4:00 PM. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(703) 308-1235**. The official group FAX machine number is **(703) 308-4556**.

MShippen  
February 23, 2001

  
**MICHAEL L. SHIPPEN**  
**PRIMARY EXAMINER**  
**ART UNIT 1621**